UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

Terves LLC,	)	
	)	**Case No. 1:19-cv-1611**
Plaintiff,	)	
	)	**JUDGE DONALD C. NUGENT**
vs.	)	
	)	
Yueyang Aerospace New Materials Co., Ltd.,	)	
	)	
and	)	
	)	
Ecometal Inc.,	)	
	)	
and	)	
	)	
Nick Yuan,	)	
	)	
Defendants.	)	

DEFENDANTS ECOMETAL, INC. AND NICK YUAN'S
ANSWER AND COUNTERCLAIMS TO THE SECOND AMENDED COMPLAINT

Defendants Ecometal, Inc. and Nick Yuan (collectively "the Ecometal Defendants"), for their Answer and Affirmative Defenses to Plaintiff Terves LLC's Second Amended Complaint, state as follows:

Summary of Case

1. Terves is a Euclid, Ohio, company that has researched, developed, and patented unique and valuable magnesium-based, dissolvable materials for constructing drilling tools for the oil and gas industry. Making tools out of dissolvable materials allows drillers to leave their tools in underground wells to dissolve and avoids the substantial cost and time of having to retrieve the tools from miles below ground.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 1 of the Second Amended Complaint and therefore deny the same.

2. Terves owns multiple patents to its dissolvable cast magnesium inventions, including the three patents that it asserts here: U.S. Patent No. 9,903,010 (the "'010 Patent"), U.S. Patent No. 10,329,653 (the "'653 Patent"), and U.S. Patent No. 10,689,740 (the "'740 Patent") collectively the "Terves Patents," which are attached as Exhibits A, B, and C, respectively.

ANSWER: The Ecometal Defendants admit that Terves has been recorded as the owner of the '010 Patent, '653 Patent, and '740 Patent, which are attached to the Second Amended Complaint as Exhibits A, B, and C, respectively, with the United States Patent and Trademark Office. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 2 of the Second Amended Complaint and therefore deny the same.

3. Defendants are working together to manufacture in China, and then import and sell in the U.S., dissolvable cast magnesium materials that infringe the Terves Patents.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 3 of the Second Amended Complaint.

4. Defendants are able to grossly undercut Terves's prices for dissolvable cast magnesium because Defendants: (a) have reverse-engineered and copied Terves's formulation, so they have no R&D costs to recoup; and (b) are benefiting from the low labor costs, low materials costs, and government subsidies in China.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 4 of the Second Amended Complaint.

5. By importing lower-price, foreign-made, copycat materials, Defendants are severely damaging the Terves's business by causing it to lose customers, sales, and market share and to suffer price erosion.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 5 of the Second Amended Complaint.

6. Because the cast magnesium materials imported into the U.S. by the Defendants, and their method of manufacture, are patented by Terves, Defendants' activities constitute patent infringement.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 6 of the Second Amended Complaint.

7. Terves sues to save its business, to stop Defendants' infringement, and to obtain monetary relief.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 7 of the Second Amended Complaint and therefore deny the same.

The Parties

8. Terves is a Nevada limited liability company with a principal place of business in Euclid, Ohio.

ANSWER: The Ecometal Defendants admits that Terves is listed as an active limited liability company with the Nevada Secretary of State. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 8 of the Second Amended Complaint and therefore deny the same.

9. Yueyang Aerospace New Materials Co. Ltd. ("Yueyang") is a Chinese company that does business in the U.S. and imports and sells products, including the infringing magnesium materials, in the U.S. According to Yueyang's website (en.yhalloy.com), its factory address is Jingming RD, Junshan Industrial Zone, Yueyang City, 414005, Hunan, China.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 9 of the Second Amended Complaint and therefore deny the same.

10. Ecometal Inc. ("Ecometal") is a Canadian business corporation that does business in the U.S. and imports and sells products, including the infringing magnesium materials, in the U.S. According to Ecometal's website (ecometalinc.ca), its address is 35 Owl Ridge Drive, Richmond Hill, Ontario L4S IP8, Canada. This address also is the private residence of Nick Yuan. Mr. Yuan operates his Ecometal business from his residence.

ANSWER: The Ecometal Defendants admit that Ecometal is a Canadian corporation maintaining its principal place of business at 35 Owl Ridge Drive, Richmond Hill, Ontario 4S IP8.

Ecometal further admits that this is also Mr. Yuan's private residence. The Ecometal Defendants deny the remaining allegations in Paragraph 10 of the Second Amended Complaint.

11. Nick Yuan is an individual who resides at 35 Owl Ridge Drive, Richmond Hill, Ontario L4S IP8, Canada. He owns and operates Ecometal Inc., and he is a principal, and upon information and belief a shareholder, of Yueyang. Mr. Yuan regularly holds himself out in the marketplace and to customers as the "Ecometal" company, and he holds himself out as a representative and principal of Yueyang.

ANSWER: The Ecometal Defendants admit that Mr. Yuan resides at 35 Owl Ridge Drive, Richmond Hill, Ontario L4S IP8. The Ecometal Defendants further admit that Mr. Yuan wholly owns and operates Ecometal. The Ecometal Defendants deny the remaining allegations in Paragraph 11 of the Second Amended Complaint.

Jurisdiction and Venue

12. This Court has subject matter jurisdiction over Terves's claims under 28 U.S.C. §§ 1331 and 1338(a) because they arise under federal law and, more specifically, under the US. Patent Act, 35 U.S.C. § 1 *et seq.*

ANSWER: The Ecometal Defendants admit the allegations in Paragraph 12 of the Second Amended Complaint.

13. This Court has personal jurisdiction over Defendants at least because, among other things, they do business in Ohio; have willfully infringed the Terves Patents and intentionally caused tortious harm to Terves in Ohio; have solicited business in Ohio and have offered to sell goods and services in Ohio and to Ohio residents and businesses; and upon information and belief, have actually sold goods and services in Ohio and to Ohio residents and businesses, including infringing products.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 13 of the Second Amended Complaint.

14. Venue is proper under 28 U.S.C. § 1931 at least because Defendants are subject to personal jurisdiction in this district under Ohio law and, therefore, reside in this district according to federal law.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 14 of the Second Amended Complaint.

Relevant Facts

I. Terves's Rights

15. Terves is a technology leader in the development, engineering, manufacture, and sale of engineered products for the oil and gas industry.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 15 of the Second Amended Complaint and therefore deny the same.

16. At their research facility in Euclid, Ohio, Terves's metallurgists and material scientists have made breakthrough inventions in the oil and gas industry.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 16 of the Second Amended Complaint and therefore deny the same.

17. Most relevant here, Terves is the leader in developing dissolvable materials for making drilling tools, such as frac balls, frac plugs, and other components used in oil and gas well completion and production.

ANSWER: The Ecometal Defendants specifically deny that Terves is the leader in developing drilling tools, such as frac balls and frac plugs. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 17 of the Second Amended Complaint and therefore deny the same.

18. Some of Terves's most important inventions are new ways to melt, mix, and cast magnesium to construct dissolvable drilling tools that provide improved control over dissolution rates and increased strength and reliability.

ANSWER: The Ecometal Defendants specifically deny that Terves has invented new ways to melt, mix, and cast magnesium to construct dissolvable drilling tools. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 18 of the Second Amended Complaint and

therefore deny the same.

19. Dissolvable drilling tools can be left miles below ground after drilling is done and then dissolved by, for example, injecting a potassium chloride solution into the well. This results in a large time and money savings because the driller need not run a retrieval line miles below the ground to fish out the drilling tools. Thus, there is high demand by the industry for effective dissolvable tooling.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 19 of the Second Amended Complaint and therefore deny the same.

20. Recognizing Terves's unique and useful inventions, the United States Patent and Trademark Office has issued numerous patents to Terves, including the Terves Patents.

ANSWER: The Ecometal Defendants admit that the United States Patent and Trademark Office issued the '010, '653, and '740 Patents. The Ecometal Defendants deny the remaining allegations in Paragraph 20 of the Second Amended Complaint.

21. The '010 Patent issued on February 27, 2018, is owned exclusively by Terves, and is directed to methods for casting magnesium and controlling its dissolution properties.

ANSWER: The Ecometal Defendants admit the version of the '010 Patent attached to the Second Amended Complaint as Exhibit A bears an issue date of February 27, 2018. The Ecometal Defendants further admit that Terves has been recorded as the owner of the '010 Patent with the United States Patent and Trademark Office. Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 21 of the Second Amended Complaint and therefore deny the same.

22. The '653 Patent issued on June 25, 2019, is owned exclusively by Terves, and is directed to dissolvable magnesium composites.

ANSWER: The Ecometal Defendants admit the version of the '653 Patent attached to the Second Amended Complaint as Exhibit B bears an issue date of June 25, 2019. The Ecometal Defendants further admit that Terves has been recorded as the owner of the '653 Patent with the

United States Patent and Trademark Office. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 22 of the Second Amended Complaint and therefore deny the same.

23. The ‘740 Patent issued on June 23, 2020, is owned exclusively by Terves, and is directed to dissolvable magnesium composites.

ANSWER: The Ecometal Defendants admit the version of the ‘740 Patent attached to the Second Amended Complaint as Exhibit C bears an issue date of June 23, 2020. The Ecometal Defendants further admit that Terves has been recorded as the owner of the ‘740 Patent with the United States Patent and Trademark Office. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 23 of the Second Amended Complaint and therefore deny the same.

24. Terves's patented magnesium materials are a breakthrough in the drilling industry. Terves's cast materials achieve better strength and ductility qualities than powder-based dissolvable materials. They offer better control over dissolution rates that allow for quicker dissolution to bring the well to a production state more quickly.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 24 of the Second Amended Complaint and therefore deny the same.

25. Terves makes and sells materials that are: (a) covered by the '653 and ‘740 Patents, and (b) made by methods claimed by the '010 Patent.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegation in Paragraph 25 of the Second Amended Complaint and therefore deny the same.

II. Defendants' Wrongful Acts

A. Defendants' Conspiracy to Infringe

26. Defendants have agreed and conspired to work together, and are working together,

to import, sell, offer to sell, and/or use in the U.S. dissolvable cast magnesium materials that are manufactured by the processes recited in one or more claims of the '010 Patent and that have compositions covered by one or more claims of the '653 and ‘740 Patents. Collectively, these dissolvable cast magnesium materials imported by the Defendants are the "Infringing Materials."

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 26 of the Second Amended Complaint.

27. The shared goal of the Defendants is simple: make money by infringing and copying Terves's materials, sell them at lower prices, and take business from Terves and others in the market.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 27 of the Second Amended Complaint.

28. The agreement between Yueyang, Ecometal, and Nick Yuan is that Yueyang will manufacture the infringing material and ship it to the U.S., while Mr. Yuan individually and through his Ecometal business-arranges business deals for the materials to be brought into the U.S., machined into drilling tools or other components, and then sold and resold in chains of distribution to end user drilling companies.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 28 of the Second Amended Complaint.

29. Yueyang is a Chinese business that owns a production facility in Yueyang, China.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 29 of the Second Amended Complaint and therefore deny the same.

30. Yueyang's China facility includes a furnace and Vertical Direct Chill (VDC) casting machinery.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 30 of the Second Amended Complaint and therefore deny the same.

31. At its China facility, Yueyang manufactures the Infringing Materials by heating and melting magnesium and magnesium alloys, mixing additives to the melted magnesium and

magnesium alloys, and cooling the melted (or partially melted) material in its VDC caster.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 31 of the Second Amended Complaint and therefore deny the same.

32. Together with Nick Yuan and Ecometal, Yueyang then imports the Infringing Materials into the U.S. where they are machined into drilling tools, such as frac plus and frac balls, and sold through chains of distribution to companies that use the Infringing Materials to drill oil and gas wells.

ANSWER: The Ecometal Defendants deny allegations in Paragraph 31 of the Second Amended Complaint.

33. Yueyang imports, sells, and offers to sell the Infringing Materials in the U.S., either directly or through partners, such as Ecometal and Yuan.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 33 of the Second Amended Complaint**.**

34. Ecometal is a sole proprietorship, where Mr. Yuan is the sole employee, executive, and manager of Ecometal. He operates and controls every aspect of the business, and he executes all of Ecometal's business activities.

ANSWER: The Ecometal Defendants admit that Mr. Yuan is the sole employee of Ecometal and that he executes all of Ecometal's business activities. The Ecometal Defendants deny the remaining allegations in Paragraph 34 of the Second Amended Complaint.

35. Mr. Yuan alone controls the Ecometal business and performs and directs all of the company's actions, including making all management decisions, deciding what materials to purchase, what business deals to enter into, and what materials to import into the U.S., what prices to charge, and who to buy from and sell to.

ANSWER: The Ecometal Defendants admit the allegations in Paragraph 35 of the Second Amended Complaint.

36. By virtue of his ownership of Yueyang and his principal role within the organization, Mr. Yuan has control and influence over Yueyang, and he has used that control and influence to direct Yueyang to manufacture the Infringing Products and then to import, sell, and

offer to sell those products in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 36 of the Second Amended Complaint.

37. Mr. Yuan has been actively soliciting businesses in the U.S., on behalf of himself, Ecometal, and Yueyang, to have businesses purchase, sell, machine, and/or distribute the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 37 of the Second Amended Complaint.

38. Among the various U.S. companies and individuals that Defendants work with to distribute and sell Infringing Materials is a Colorado-based company called "Protek Systems LLC."

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 38 of the Second Amended Complaint.

39. Protek buys or arranges purchases of Infringing Material from the Defendants and distributes or resells them to others in the U.S., and Protect otherwise assists and partners with Mr. Yuan and Ecometal to arrange the sale and resale of the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 38 of the Second Amended Complaint.

40. Magnesium Machine, LLC, which does business as "MMP," is an Oklahoma company in Chickasha, Oklahoma, that also assists and partners with Defendants to import, distribute, and resell the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 40 of the Second Amended Complaint.

41. Among other things, MMP further processes and machines the Infringing Materials to make them more market-ready for downstream buyers and resellers.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 41 of the Second Amended Complaint.

42. Defendants, MMP, and Protek partner to import the Infringing Materials into the U.S., and to make profit at each stage in the distribution chain from Yueyang to end users.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 42 of the Second Amended Complaint.

43. Among other things, Ecometal and Mr. Yuan are ordering or purchasing Infringing Material from Yueyang and directing that it be shipped into the U.S. or facilitating the ordering or purchasing of that material from Yueyang.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 43 of the Second Amended Complaint.

44. Import Bills of Lading confirm that Ecometal is involved in the importing of Infringing Material. For example, the Import Bill of Lading attached as Exhibit D shows that 18 cartons of Magnesium alloy extruded round bars were imported from China into the U.S. on February 3, 2019. Upon information and belief, those round bars are Infringing Materials that were manufactured by Yueyang and extruded in China by a third-party or affiliate of Yueyang before shipment.

ANSWER: The Ecometal Defendants admit that Exhibit D to the Second Amended Complaint appears to be a Bill of Lading Detail obtained from a publicly-available shipping website. The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the remaining allegations in Paragraph 44 of the Second Amended Complaint and therefore deny the same.

45. The Bill of Lading identifies "MMP Ecometal" as the Consignee and provides an address in Chickasha, Oklahoma. This document further shows that Ecometal and MMP are working together to import Infringing Material into the U.S.

ANSWER: The Ecometal Defendants admit that the Bill of Lading Detail attached to the Second Amended Complaint as Exhibit D identifies an “MMP Ecometal” and provide an address in Chickasha, Oklahoma. The Ecometal Defendants deny the remaining allegations in Paragraph 45 of the Second Amended Complaint.

46. In 2015, MMP and Protek were attempting to reverse engineer Terves’s dissolvable cast magnesium material that was displacing Protek and MMP’s carbon fiber composite frac balls.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 46 of the Second Amended Complaint and therefore deny the same.

47. Upon information and belief, Protek and MMP persisted in trying to reverse engineer Terves's materials and ultimately found individuals or businesses willing to analyze Terves's material, instructed them to reverse engineer it, and then Protek and MMP used the results of the reverse engineering work to provide specifications or other instructions to Ecometal, Yuan, and Yueyang for each to manufacture or otherwise obtain dissolvable cast magnesium material identical to Terves's patented materials.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 47 of the Second Amended Complaint.

48. Upon information and belief, Ecometal, Yuan, and Yueyang used and continue to use information reverse engineered from Terves's materials to manufacture or otherwise obtain the dissolvable cast magnesium that it imports and sells in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 48 of the Second Amended Complaint.

B. Terves's Proves Infringement

49. Since the filing of its original complaint in this action, Terves obtained samples of the Infringing Material from Ecometal.

ANSWER: The Ecometal Defendants deny that any of its products infringe any of the patents at issue in this suit. The Ecometal Defendants admit that their counsel coordinated procurement of samples of products sold to MMP for production in this suit.

50. Terves tested the infringing material and confirmed that it infringes one or more claims of the '653 and '010 Patents. Prior to filing the lawsuit, Terves had attempted to obtain or purchase dissolvable cast magnesium from Ecometal for testing to dispositively prove that the material infringes, but Ecometal refused to sell or otherwise provide the material to Terves.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 50 of the Second Amended Complaint.

51. The Infringing Material itself is not available for purchase in the U.S. to the public.

Rather, Defendants distribute and sell the Infringing Material in the U.S. only through specific channels of distribution that are selected and controlled by Defendants and by others downstream from the Defendants.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 51 of the Second Amended Complaint.

52. The specifications, instructions, or formulations used by Defendants to manufacture the Infringing Material are not publicly available and are kept secret by the Defendants.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 52 of the Second Amended Complaint.

53. Terves has issued document subpoenas in this action to third-parties in the downstream chain of distribution that likely have possession of evidence of the Infringing Materials' compositions and methods of manufacture. So far, the third-parties have resisted the subpoenas and refused to turn over formula information or any cast magnesium samples for testing. Thus, this information can only be obtained by compelling it through this Court's discovery power.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 53 of the Second Amended Complaint.

54. Importation records maintained by U.S. Customs show that Yueyang and Ecometal have imported over 190 tons of dissolvable cast magnesium that that was shipped to Magnesium Machine LLC (dba "MMP") in Oklahoma. MMP machines and processes those materials to create dissolvable drilling tools that are sold and/or distributed downstream to drilling companies.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 54 of the Second Amended Complaint and therefore deny the same.

55. Terves's market intelligence reports that Yueyang has shipped an additional 100 tons of dissolvable magnesium by ship into the U.S. as recently as September 2019.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 55 of the Second Amended

Complaint and therefore deny the same.

56. Terves has obtained samples of dissolvable cast magnesium that originated from China from U.S. resellers. Terves's testing of those samples confirmed that their compositions were covered by one or more claims of the '653 Patent and they were manufactured by the methods recited by one or more claims of the '010 Patent. Based on Terves's industry and market knowledge, Yueyang is the most likely source of the material that Terves obtained and that tested positive for infringement of both Terves's patents.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 56 of the Second Amended Complaint and therefore deny the same.

57. Any further efforts to obtain access to Yueyang's China facility, to records showing how the Infringing Materials are manufactured, or to the Infringing Materials themselves would be futile without the use of this Court's discovery authority to compel disclosure of the information, documents, and things.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 57 of the Second Amended Complaint and therefore deny the same.

58. Around October 2018, Terves had business discussions with Mr. Yuan. During those discussions, which did not lead to a consummated business deal, Terves disclosed to Mr. Yuan the existence of the ‘010 Patent. Therefore, Defendants have actual knowledge of the ‘010 Patent, and Defendants are willfully infringing the ‘010 Patent.

ANSWER: The Ecometal Defendants admit that, in or around October 2018, Mr. Yuan met and communicated with representatives of Terves. The Ecometal Defendants deny the remaining allegations in Paragraph 58 of the Second Amended Complaint.

59. The Defendants had actual knowledge of the '653 Patent by at least August 2018 when the original complaint in this action was served on Ecometal and Mr. Yuan. Despite that actual knowledge, Defendants continue to commit all of the infringing acts identified in this pleading and, thus, are willfully infringing the ‘653 Patent.

ANSWER: The Ecometal Defendants admit they were served with an original complaint filed in this action in or around August 2019. The Ecometal Defendants deny the remaining

allegations in Paragraph 59 of the Second Amended Complaint.

60. Defendants' willful infringement of the Terves's Patents has caused financial harm to Terves and irreparable harm, which will continue unless an injunction issues.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 60 of the Second Amended Complaint.

Count One Infringement of the '010 Patent

61. Terves incorporates by reference all preceding allegations in this complaint as if fully rewritten herein.

ANSWER: The Ecometal Defendants incorporate by reference and re-allege each and every Answer to Terves's Allegations contained in Paragraphs 1-61 as though fully set forth herein.

62. Yueyang is using the methods recited in one or more claims of the '010 Patent to manufacture Infringing Materials at its Yueyang, China facility.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 62 of the Second Amended Complaint and therefore deny the same.

63. More specifically, and as a non-limiting example, at its China facility, Yueyang performs each of the steps of claim 1 of the '010 Patent by: (a) melting magnesium or magnesium alloy in a furnace (i.e., "heating" it "to a point above its solidus temperature"), (b) adding copper, nickel, cobalt, titanium, or iron as an additive (that constitutes about .05 wt % to 45 wt % of the mixture), where the additive has a higher melting point than the magnesium or alloy, and (c) cooling the magnesium composite, where the composite includes in situ precipitation of galvanically-active intermetallic phases.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 63 of the Second Amended Complaint and therefore deny the same.

64. The Infringing Materials, therefore, are made by Yueyang by a process patented in the United States.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to

form a belief as to the truth or falsity of the allegations in Paragraph 64 of the Second Amended Complaint and therefore deny the same.

65. Yueyang has directly infringed, and is directly infringing, the '010 Patent under 35 U.S.C. § 271(g) at least by importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., either itself or in partnership with Ecometal.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 65 of the Second Amended Complaint and therefore deny the same.

66. Ecometal has directly infringed, and is directly infringing, the '010 Patent under 35 U.S.C. § 271(g) at least because: (a) it is importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., and (b) it is controlling, directing, and/or participating with Yueyang to import, sell, offer to sell, and/or use the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny allegations in Paragraph 65 of the Second Amended Complaint.

67. Mr. Yuan has directly infringed, and is directly infringing, the '010 Patent under 35 U.S.C. § 271(g) at least because: (a) he is personally importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., and (b) he is controlling, directing, and/or participating with Ecometal and Yueyang to import, sell, offer to sell, and/or use the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 67 of the Second Amended Complaint.

68. Mr. Yuan has induced infringement of the '010 Patent under 35 U.S.C. § 271(b) at least by actively encouraging Yueyang and Ecometal to commit the direct infringement acts identified above, knowing that the acts he induced would result in direct patent infringement and with specific intent that such infringement occur. Mr. Yuan encouraged Yueyang's infringement at least by directing, controlling, and influencing Yueyang to manufacture, import, and sell the Infringing Materials in the U.S., and Mr. Yuan encouraged Ecometal's infringement at least by directing, controlling, and influencing Ecometal to import and sell the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 68 of the Second Amended Complaint.

69. Furthermore, Mr. Yuan and Ecometal have induced third-parties, such as MMP, to directly infringe the '010 Patent under 35 U.S.C. § 271(g) by arranging business deals with or for

MMP according to which MMP machines and further processes the Infringing Materials *(i.e.*, "uses" the materials).

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 69 of the Second Amended Complaint.

70. Additionally, the methods used by Yueyang to manufacture the Infringing Materials are presumed to have been made by one or more of the processes claimed by the '010 Patent under 35 U.S.C. § 295.

ANSWER: The Ecometal Defendants deny allegations in Paragraph 70 of the Second Amended Complaint.

71. Defendants have knowledge of the '010 Patent, know that the Infringing Products were manufactured by the processes recited in one or more claims of the '010 Patent, and thus their infringement is and continues to be willful and deliberate.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 71 of the Second Amended Complaint.

72. Terves has been and will continue to be damaged by Defendants' infringement in an amount to be determined at trial.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 72 of the Second Amended Complaint.

73. Terves has been suffering irreparable harm due to Defendants' infringement and will continue to suffer irreparable harm unless and until Defendants are enjoined by this Court.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 73 of the Second Amended Complaint.

Count Two Infringement of the '653 Patent

74. Terves incorporates by reference all preceding allegations in this complaint as if fully rewritten herein.

ANSWER: The Ecometal Defendants incorporate by reference and re-allege each and every Answer to Terves's allegations contained in numerical Paragraphs 1 through 74 as though fully set forth herein.

75. The Infringing Materials are covered by one or more claims of the '653 Patent. For example, as to claim 1 of the '653 Patent, the magnesium materials that Defendants are importing, selling, offering to sell, and using: (a) contain magnesium or a magnesium alloy, (b) have copper, nickel, cobalt, or iron as an additive (that constitutes about .05 wt % to 45 wt % of the mixture), (c) the additive forms a precipitant in the composite, and (d) the magnesium composite has a dissolution rate of at least 5 mg/cm2/hr. in 3 wt % KCl water mixture at 90° C.

ANSWER: The Ecometal Defendants deny allegations in Paragraph 75 of the Second Amended Complaint.

76. Yueyang has directly infringed the '653 Patent under 35 U.S.C. § 271(a) at least by importing, selling, offering to sell, and/or using the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 76 of the Second Amended Complaint and therefore deny the same.

77. Ecometal has directly infringed, and is directly infringing, the '653 Patent under 35 U.S.C. § 271(a) at least because: (a) it is importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., and (b) it is controlling, directing, and/or participating with Yueyang to import, sell, offer to sell, and/or use the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 77 of the Second Amended Complaint.

78. Mr. Yuan has directly infringed, and is directly infringing, the '653 Patent under 35 U.S.C. § 271(a) at least because: (a) he is personally importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., and (b) he is controlling, directing, and/or participating with Ecometal and Yueyang to import, sell, offer to sell, and/or use the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 78 of the Second Amended Complaint.

79. Yueyang has induced infringement of the '653 Patent under 35 U.S.C. § 271(b) at least because, with knowledge of the '653 Patent, it has sold and imported the Infringing Material in the U.S. for others (including Protek, MMP, Ecometal, and others in the distribution chain) to use and resell the Infringing Material, which are acts of direct infringement, with specific intent that they do so.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 79 of the Second Amended

Complaint and therefore deny the same.

80. Ecometal has induced infringement of the '653 Patent under 35 U.S.C. § 271(b) at least because, with knowledge of the '653 Patent, it has sold and imported the Infringing Material in the U.S. for others (including Protek, MMP, and others in the distribution chain) to use and resell the Infringing Material, which are acts of direct infringement, with specific intent that they do so.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 80 of the Second Amended Complaint.

81. Mr. Yuan has induced infringement of the '653 Patent under 35 U.S.C. § 271(b) at least by actively encouraging Yueyang and Ecometal to commit the direct infringement acts identified above, knowing that the acts he induced would result in direct patent infringement and with specific intent that such infringement occur. Mr. Yuan encouraged Yueyang's infringement at least by directing, controlling, and influencing Yueyang to manufacture, import, and sell the Infringing Materials in the U.S. and Mr. Yuan encouraged Ecometal's infringement at least by directing, controlling, and influencing Ecometal to import and sell the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 81 of the Second Amended Complaint.

82. Terves has been and will continue to be damaged by Defendants' infringement in an amount to be determined at trial.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 82 of the Second Amended Complaint.

83. Terves has been suffering irreparable harm due to Defendants' infringement and will continue to suffer irreparable harm unless and until Defendants are enjoined by this Court.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 83 of the Second Amended Complaint.

Count 3 Infringement of the ‘740 Patent

84. Terves incorporates by reference all preceding allegations in this complaint as if fully rewritten herein.

ANSWER: The Ecometal Defendants incorporate by reference and re-allege each and every Answer to Terves’s allegations contained in numerical Paragraphs 1 through 84 as though

fully set forth herein.

85. The Infringing Materials are covered by one or more claims of the '740 Patent. for Example, as to claim 19 of the '740 Patent, the magnesium materials that Defendants are importing, selling, offering to sell, and using: (a) are magnesium cast composites, (b) contain magnesium or a magnesium alloy, (c) have nickel as an additive material that constitutes at least .01 wt. of the composite, (d) have in site precipitate that include the nickel, (e) a plurality of particle of in situ precipitate have a size of no more than 50 µm, and (f) the magnesium composite has a dissolution rate of at least 5 mg/cm2/hr. in 3 wt. % KCL water mixture of 90˚ C.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 85 of the Second Amended Complaint.

86. Yueyang has directly infringed the '740 Patent under 35 U.S.C. § 271(a) at least by importing, selling, offering to sell, and/or using the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 86 of the Second Amended Complaint and therefore deny the same.

87. Ecometal has directly infringed, and is directly infringing, the '740 Patent under 35 U.S.C. § 271(a) at least because: (a) it is importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., and (b) it is controlling, directing, and/or participating with Yueyang to import, sell, offer to sell, and/or use the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 87 of the Second Amended Complaint.

88. Mr. Yuan has directly infringed, and is directly infringing, the '740 Patent under 35 U.S.C. § 271(a) at least because: (a) he is personally importing, selling, offering to sell, and/or using the Infringing Materials in the U.S., and (b) he is controlling, directing, and/or participating with Ecometal, and Yueyang to import, sell, offer to sell, and/or use the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 88 of the Second Amended Complaint.

89. Yueyang has induced infringement of the '740 Patent under 35 U.S.C. §271(b) at least because, with knowledge of the '740 Patent, it has sold and imported the infringing material in the U.S. for others (including Protek, MMP, Ecometal, and others in the distribution chain) to use and resell the infringing material, which are acts of direct infringement, with specific intent that they

do so.

ANSWER: The Ecometal Defendants are without sufficient information or knowledge to form a belief as to the truth or falsity of the allegations in Paragraph 89 of the Second Amended Complaint and therefore deny the same.

90. Ecometal has induced infringement of the '740 Patent under 35 U.S.C. § 271(b) at least because, with knowledge of the '740 Patent, it has sold and imported the Infringing Material in the U.S. for others (including Protek, MMP, and others in the distribution chain) to use and resell the Infringing Material, which are acts of direct infringement, with specific intent that they do so.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 90 of the Second Amended Complaint.

91. Mr. Yuan has induced the infringement of the '740 Patent under 35 U.S.C. § 271(b) at least by actively encouraging Yueyang and Ecometal to commit the direct infringement acts identified above, knowing that the acts he induced would result in direct patent infringement and with specific intent that such infringement occur. Mr. Yuan encouraged Yueyang's infringement at least by directing, controlling, and influencing Yueyang to manufacture, import, and sell the Infringing Materials in the U.S., and Mr. Yuan encouraged Ecometal's infringement at least by directing, controlling, and influencing Ecometal to import and sell the Infringing Materials in the U.S.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 91 of the Second Amended Complaint.

92. Furthermore, all Defendants have induced infringement of the '740 Patent under 35 U.S.C. § 271(b) and contributed to infringement of the '740 Patent under 35 U.S.C. § 271(c) by selling and offering to sell the Infringing Material to downstream the customers that use the Infringing Material in, or as a part of, a ball, a frac ball, a tube, a plug or other tool component to be used in well drilling or completion operations, with specific intent that they do so, where the Infringing Material is a material part of the invention, the Defendants know the Infringing Material is especially made to be used in such applications, and the Infringing Material is nota staple article or commodity of commerce suitable for substantial noninfringing use.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 92 of the Second Amended Complaint.

93. Terves has been and will continue to be damaged by Defendants' infringement in an amount to be determined at trial.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 93 of the Second Amended Complaint.

94. Terves has been suffering irreparable harm due to the Defendants' infringement and will continue to suffer irreparable harm unless and until Defendants are enjoined by this Court.

ANSWER: The Ecometal Defendants deny the allegations in Paragraph 94 of the Second Amended Complaint.

Prayer for Relief

In response to Terves's prayer for relief, the Ecometal Defendants deny each and every allegation contained therein and, further, the Ecometal Defendants specifically deny that Terves is entitled to any of the relief requested in the Second Amended Complaint; specifically deny that Terves is entitled to a finding that Ecometal Defendants have directly infringed one or more claims of the '010 Patent; specifically deny that Terves is entitled to a finding that the Ecometal Defendants have each induced infringement of the '010 Patent; specifically deny that Terves is entitled to a finding that Ecometal Defendants have directly infringed one or more of the claims of the '653 Patent; specifically deny that Terves is entitled to a finding that Ecometal Defendants have each induced infringement of the '653 Patent; specifically deny that Terves is entitled to a finding that Ecometal Defendants have directly infringed one or more claims of the '740 Patent; specifically deny that Terves is entitled to a finding that the Ecometal Defendants have each induced infringement of the '740 Patent; specifically deny that Terves is entitled to injunctive relief or damages of any kind; specifically deny that Terves is entitled to an order requiring any of Ecometal Defendants to account to Terves for any sales, revenues, or profits; specifically deny that this case is "exceptional" or that Terves is entitled to attorney's fees; an specifically deny that Terves is entitled to interest and costs.

THE ECOMETAL DEFENDANTS' AFFIRMATIVE DEFENSES

The Ecometal Defendants allege the following as separate and affirmative defenses to the Second Amended Complaint. By virtue of having listed the following defenses, the Ecometal Defendants do not assume any legal or factual burden not otherwise assigned to it under the law:

1. The Ecometal Defendants have not engaged in any acts that would constitute direct, indirect, or joint infringement of any valid claim under the '010 Patent, the '653 Patent, or the '740 Patent, either literally or under the doctrine of equivalents or otherwise.

2. The Ecometal Defendants do not make, use, sell, or offer to sell each claimed element of any asserted claim of the '010 Patent, the '653 Patent, or the '740 Patent.

3. The Ecometal Defendants do not direct or control any other entity to make, use, sell, or offer to sell any element of any asserted claim of the '010 Patent, the '653 Patent, or the '740 Patent, which is not made, used, sold, or offered to be sold by the Ecometal Defendants.

4. The Ecometal Defendants had no knowledge that any product they used or uses allegedly infringes any specific claim of the '010 Patent, the '653 Patent, or the '740 Patent, and therefore, they could not have induced any alleged infringement of any specific claim of the '010 Patent, the '653 Patent, or the '740 Patent.

5. The claims of the '010 Patent, the '653 Patent, and the '740 Patent are invalid and/or unenforceable for failure to satisfy the conditions of patentability set forth in 35 U.S.C. §§ 101 *et seq.*, including at least sections 101, 102, 103, and 112.

6. The claims of the '010 Patent, the '653 Patent, and the '740 Patent are unenforceable by virtue of the inequitable conduct of Terves and its agents and representatives.

7. Terves's claims are barred, in whole or in part, by the doctrines of waiver, laches, and/or estoppel.

8. The Second Amended complaint fails to state a claim upon which relief may be granted.

9. Terves is barred, under the doctrine of prosecution history estoppel, from construing the claims of the '010 Patent, the '653 Patent, or the '740 Patent in such a way as may cover any of the products or processes used by Ecometal Defendants by reasons of statements made to the United State Patent and Trademark Office during the prosecution of the application that led to the issuance of the '010 Patent, the '653 Patent, and the '740 Patent.

The Ecometal Defendants reserve the right to assert additional defenses that it learns of through discovery in this action.

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COUNTERCLAIMS

Ecometal, Inc. ("Ecometal") asserts the following counterclaims against Terves, LLC ("Terves").

THE PARTIES

1. Ecometal is a corporation organized and existing under the laws of Ontario, Canada, maintaining its principal place of business at 35 Owl Ridge Drive, Richmond Hill, Ontario 4S IP8.

2. Terves is a Nevada limited liability company with a principal place of business in Euclid, Ohio.

JURISDICTION AND VENUE

3. These counterclaims arise under the Declaratory Judgment Act and the Patent Statute of the United States of America, Titles 28 and 35 of the United States Code. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. § 1331, 1338(a), 2201, and 2202.

4. This Court has personal jurisdiction over Terves because Terves has submitted itself to this Court's jurisdiction by filing its Complaint in this Court.

5. Terves purports to be the owner of the entire right, title, and interest in and to the '010, '653, and '740 Patents.

6. Venue in this Court is proper based on the choice of forum by Terves and pursuant to 28 U.S.C. § 1391(b), (c), and/or 1400(b).

7. Terves has accused Ecometal of infringement of the '010, '653, and '740 Patents. Ecometal denies that any of its alleged products infringe any valid and enforceable claim of the '010, '653, and '740 Patents.

8. Terves's filing of its Complaint, which includes allegations that Ecometal infringes the '010, '653, and '740 Patents, has created an actual and justiciable controversy between Ecometal and Terves with respect to non-infringement, validity, and unenforceability of the '010, '653, and '740 Patents.

TERVES'S AND OTHERS DUTIES OF CANDOR AND GOOD FAITH IN DEALING WITH THE USPTO

9. 37 C.F.R. § 1.56 imposes upon "[e]ach individual associated with the filing and prosecution" of the '010, '653, and '740 Patents a duty of candor and good faith in dealing with the USPTO.

10. 37 C.F.R. § 1.56(c) defines "individuals associated with the filing or prosecution of a patent application" to be:

- each inventor named in the application;
- each attorney or agent who prepares or prosecutes the application; and
- every other person who is substantively involved in the preparation of prosecution of the application and who is associated with the inventor, the applicant, an assignee, or anyone to whom there is an obligation to assign the application.

11. Brian P. Doud, Nicholas J. Farkas, and Andrew J. Sherman, all current employees of Terves, are the listed inventors of the '010, '653, and '740 Patents.

12. Brian E. Turung of Fay Sharp LLP is the prosecuting attorney for each of the '010, '653, and '740 Patents.

13. Terves is the assignee of each of the '010, '653, and '740 Patents.

14. Therefore, at least Terves and Messrs. Doud, Farkas, Sherman, and Turung owed a duty of candor and good faith in dealing with the United States Patent and Trademark Office ("USPTO") during prosecution of the '010, '653, and '740 Patents.

15. This duty of candor and good faith in dealing with the USPTO required *at least* the following during the prosecution of the applications that led to the issuance of the '010, '653 and '740 Patents:

- bringing to the attention of the USPTO "any material prior art or other information cited or brought to [applicants and other individuals'] attention in any foreign application. The inference that such prior art or other information is material is especially strong where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant." Manual of Patent Examining Procedure ("MPEP") § 2001.06(a);

- providing the USPTO "a copy of the translation if a written English-language translation of a non-English-language document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in [37 C.F.R.] § 1.56(c)." 37 C.F.R. § 1.98; and

- notifying the USPTO, particularly through an Information Disclosure Statement, "the existence of [] litigation [involving the subject matter for which a patent is being sought] and any other material information arising therefrom." Namely, "material information that is raised in trial proceedings that is relevant to related applications undergoing examination should be submitted on an Information Disclosure Statement for the examiner's consideration. Examples of such material information include evidence of possible prior public use or sales, questions of inventorship, prior art, allegations of 'fraud,' 'inequitable conduct,' and 'violation of duty of disclosure.'" MPEP 2001.06(c).

16. Terves and its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung violated each of these duties of candor and good faith in dealing with the USPTO.

FIRST COUNTERCLAIM
(Declaration of Unenforceability of the '010 Patent)

17. Ecometal repeats and re-alleges paragraphs 1–16 as if set forth specifically herein.

18. The '010, '653, and '740 Patents are all entitled "Galvanically-Active In Situ Formed Particles for Controlled Rate Dissolving Tools," and all claim priority to U.S. provisional application No. 61/981,425, filed April 18, 2014.

19. On April 17, 2015, Terves filed non-provisional application no. 14/689,295, which

eventually issued as the ’010 Patent.

20. Terves also filed a patent application under the auspices of the Patent Cooperation Treaty (“PCT”) on April 17, 2015, based on provisional application No. 61/981,425.

21. On or around October 17, 2016, Terves filed a Chinese Patent Application based on its PCT application (application number CN 201580020103.7), which thus relates to the U.S. non-provisional application that issued as the ’010 Patent.

22. On July 5, 2017, Terves filed non-provisional application no. 15/641,439, which eventually issued as the ’653 Patent, as a division of application no. 14/689,295, which issued as the ’010 Patent.

23. On or around August 11, 2017, the Chinese patent office issued its First Office Action, rejecting all filed claims over Chinese Patent Publication No. CN 103343271 A to Xiao *et al.* (“Xiao”). A true and correct copy of the Chinese Patent Office’s First Office Action is attached hereto as Exhibit 1.

24. Terves responded to the Chinese Patent Office’s First Office Action by amending the claims pending in its Chinese Patent Application to distinguish the claimed subject matter from Xiao, and argued:

> For this issue, the applicant holds as follows: the purpose of adding and dispersing the additive material while the magnesium or magnesium alloy is above the solidus temperature of magnesium or magnesium alloy is not merely to homogenize the alloy liquid as mentioned by the Examiner; more importantly, after being added to the molten magnesium alloy, the additive material does not melt, and in this way, when the molten magnesium alloy and the unmelted additive material in the molten magnesium alloy are cooled, the unmelted additive material can be accumulated in the intermediate metal phase with the electrochemical activity.
>
> To further clarify this limiting feature and the effects thereof, the applicant has amended claim 1, which further recites “adding an additive material to said magnesium or magnesium alloy while said magnesium or magnesium alloy is above said solidus temperature of magnesium or magnesium alloy and lower than the melting point temperature of said additive material to form a mixture …” The

foregoing limiting technical feature is not disclosed by comparison reference 1.

A true and correct copy of Terves's response to the First Office Action of the Chinese Patent Office is attached hereto as Exhibit 2.

25. On or around September 20, 2017, Terves filed Information Disclosure Statements in the applications that eventually issued as the '010 and '653 Patents, disclosing to the USPTO twenty-eight (28) U.S. Patents, thirty-two (32) U.S. Patent publications, fifteen (15) Foreign Patent Documents (including the Chinese-language version of Xiao), and thirteen (13) Non-Patent Literature Documents.

26. As part of its submission of the Information Disclosure Statements on or around September 20, 2017, in the applications that issued as the '010 and '653 Patents, Terves submitted the full-length Chinese-language version of Xiao as well as an English translation of the abstract appearing in that Chinese version of Xiao. A true and correct copy of the English-language abstract of Xiao and full-length Chinese-language version of Xiao are attached hereto as Exhibits 3 and 4, respectively.

27. Terves never provided the USPTO with a copy of the Chinese Patent Office's First Office Action, Terves's response thereto, nor a complete English translation of Xiao.

28. On September 21, 2017, the USPTO issued a non-final rejection in the application that issued as the '010 Patent, *inter alia*, rejecting claim 1 under 35 U.S.C. § 102(a)(1) as anticipated by, or in the alternative, under 35 U.S.C. § 103 as obvious over JP2013-019030 (to Tashiharu) because:

> JP'030 teaches a process of producing a magnesium composite. JP'030 teaches adding an additive of silicon (melting point 1414°C) to molten magnesium alloy kept at 800-900°C in an amount of 0.5-5 mass%, dispersing, and cooling in order to crystallize (precipitate) intermetallic phases that would be galvanically active since silicon is also used in the instant application to provide this feature.

A true and correct copy of the USPTO's September 21, 2017 office action is attached hereto as Exhibit 5.

29. On October 5, 2017, Terves responded to this rejection in the USPTO non-final rejection stating:

> Based on the teachings of the JP '030 publication, the magnesium alloy must include both calcium and silicon additions to the base magnesium alloy so that a CaMgSi phase is formed. Independent claims 1, 33 and 50-55 do not require that the additive include either calcium or silicon. These independent claims do require that the additive material include one or more of copper, nickel, cobalt, titanium, and iron, or that the additive material include one or more of copper, nickel and cobalt. Such metal additives are not taught or suggested by the JP '030 publication.
>
> Independent claims 1, 33 and 50-55 also require that the metal additive be added to the magnesium or magnesium alloy at a temperature that is above the solidus temperature of the magnesium or magnesium alloy, but also at a temperature that is less than the melting temperature of the metal additive. The JP '030 publication teaches that the calcium is added to the base magnesium alloy at a temperature that is preferably 860-880°C. Such temperature is greater than the 845°C melting point of calcium. Such a teaching is contrary to the method defined in independent claims 1, 33 and 50-55.

A true and correct copy of Terves's October 5, 2017 response is attached hereto as Exhibit 6.

30. The USPTO issued no further rejections, and the '010 Patent issued February 27, 2018.

31. Even though Terves provided the USPTO with an English-language translation of the Xiao abstract, the Xiao abstract does not completely describe the disclosures found in the full-length Chinese-language version of Xiao, particularly as it relates to the limitations of the claimed inventions of the '010 Patent. The English-language translation of the Xiao abstract discloses only:

> The invention discloses light and pressure-proof fast-decomposed cast magnesium alloy which can be used as a tripping ball material for a multi-stage sliding sleeve staged-fracturing technique. The light and pressure-proof fast-decomposed cast magnesium alloy is prepared from the following components: 13-25% of AI, 2-15% of Zn, 0.1-5% of Fe, 0.05-5% of Cu, 0.05-5% of Ni, 0-5% of Ag, 0.05-0.5% of Zr, 0.05-0.5% of Ti, and the balance of Mg. The preparation method comprises the following steps of: weighing the components according to the designed component

> ratio of the magnesium alloy; firstly, putting pure magnesium and pure aluminum into a smelting furnace, putting pure zinc and intermediate alloy of other components into magnesium-aluminum alloy melt after melting; refining, degassing, and stewing after warming to melt; then casting in a protective atmosphere. The light and pressure-proof fast-decomposed cast magnesium alloy is reasonable in component ratio, and simple in craft process; the light and pressure-proof fast-decomposed cast magnesium alloy can be obtained by controlling the ingredients of the alloy; the alloy decomposition performance exceeds that of the traditional cast magnesium alloy; the demands of the multi-stage sliding sleeve staged-fracturing technique on the decomposition performance of the tripping ball material can be met; industrialized application can be achieved; application of the magnesium alloy in the field of exploitation of petroleum and gas is expanded.

32. Even assuming the Examiner noted the English-language translation of the Xiao abstract's disclosure of one or more of copper, nickel, cobalt, titanium, and iron (which Terves argued were not present in JP'030), the Xiao English-language abstract does not disclose "that the metal additive be added to the magnesium or magnesium alloy at a temperature that is above the solidus temperature of the magnesium or magnesium alloy, but also at a temperature that is less than the melting temperature of the metal additive." The full-length Chinese-language version of Xiao does disclose "that the metal additive be added to the magnesium or magnesium alloy at a temperature that is above the solidus temperature of the magnesium or magnesium alloy, but also at a temperature that is less than the melting temperature of the metal additive."

33. For example, the full-length version of Xiao provides (in Chinese) that:

> The preparation method is as follows: first pure magnesium and pure aluminum are loaded into a smelting furnace and the temperature is increased to 700 °C, after melting, an Al-Fe intermediate alloy, an Al-Ni intermediate alloy, an Al-Ag intermediate alloy, an Al-Zr intermediate alloy, an Al-Ti intermediate alloy and pure zinc, which have been heated, are next added into the resulting magnesium-aluminum alloy melt, and at the same time the temperature is raised to 740 °C; after melting, the temperature is lowered to 720 °C, argon is then introduced in a degassing treatment; and the temperature is next lowered to 700 °C, the sample is allowed to stand for a while, and then cast under the protection of argon, and then cooled.

A true and correct copy of the full-length [certified] English-language translation of Xiao is

attached hereto as Exhibit 7.

34. The English translation of the Chinese Patent Office's First Office Action available via "Global Dossier" (an official joint project of the U.S., European, Japanese, Korean and Chinese Patent Offices to modernize the global patent system) demonstrates that the Chinese Patent Office—and therefore Terves—was aware of these elements in the full-length version of Xiao:

> The casting magnesium alloy of the withstand voltage quick decomposition of light. The micro- component that still includes following weight percentage., Al 13-25% Zn 2-15% Fe 0.1-5% Cu 0.05-5% Ni 0.05-5% (is the additive material., The additive material has the fusing point of the said solidus temperature that is greater than said magnesium or magnesium alloy., And additive material Cu., Nichar(39)s addition and be 1 ~ 10%., Drop on in the scope of claim 1)., Ag 0-5%Zr 0.05-0.5% Ti 0.05-0.5% The surplus is Mg.
>
> The method of preparation of the casting magnesium alloy of the withstand voltage quick decomposition of light. Including following step.,
>
> Press the casting magnesium alloy component ratio of the withstand voltage quick decomposition of light of design. Each component is got to the title., Earlier with pure magnesium., The smelting furnace is put into to pure aluminium., Intensify to 700-730DEG C (it heats to this magnesium or point more than the magnesium alloy solidus temperature to be about to magnesium or magnesium alloy) .. , Put into magnadure fuse-element (being about to additive addition of substances to said magnesium or magnesium alloy formation mixture). with the middle alloy of pure zinc and micro- component again after melting., Intensify to 740-780DEG C. Melt the back. When lowering the temperature to 720-750DEG C., Let in the argon gas or carry out the gettering treatment with the concise agent of C2Cl6. Then. Lower the temperature to 700-720DEG C., Stew., (it forms the magnesium composite to cool off said mixture promptly). casts under the mist protection of argon gas or SF6 and air.

Ex. 1 at pp. 5-6.

35. The full-length English-language version of Xiao and/or the Chinese Patent Office's First Office Action are therefore "material" to the patentability of the '010 Patent because they disclose that at least one element that Terves argued to the USPTO was not present in the prior art was actually present in the prior art, where "material" means that a reasonable U.S. Patent Examiner would have considered the information important in deciding whether or not to allow

the '010 Patent. This is particularly true given Terves's argument to the examiner that element was not present in the prior art.

36. Based on the Chinese Patent Office's August 11, 2017 First Office Action, Terves knew of the materiality of Xiao and, based on its decision to provide only the Xiao abstract in English and subsequent arguments regarding elements purportedly absent in the prior art (but disclosed in the Chinese-language version of Xiao), intended to deceive the USPTO by not not providing the USPTO with a copy of an English translation of the full-length XIAO and/or failing to provide or make the USPTO otherwise aware of the Chinese Patent Office's First Office Action.

37. With respect to the '010 Patent, one or more of Terves, its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung therefore violated their duty of candor and good faith in dealing with the USPTO by failing to:

- bring to the attention of the USPTO "any material prior art or other information cited or brought to [applicants and other individuals'] attention in any foreign application. The inference that such prior art or other information is material is especially strong where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant." MPEP 2001.06(a); and

- provide the USPTO "a copy of the translation if a written English-language translation of a non-English-language document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in [37 C.F.R.] § 1.56(c)." 37 C.F.R. § 1.98.

38. "But for" one or more of Terves, and its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung violating their duty of candor and good faith in dealing with the USPTO the '010 Patent would not have been issued by the United States Patent Office.

39. An immediate, real, and justiciable controversy exists between Ecometal and Terves regarding the enforceability of the '010 Patent.

40. Ecometal seeks a judgment declaring that the claims of the '010 Patent are

unenforceable under the doctrine of inequitable conduct.

SECOND COUNTERCLAIM
(Declaration of Unenforceability of the '653 Patent)

41. Ecometal repeats and re-alleges paragraphs 1–40 as if set forth specifically herein.

42. On November 21, 2018, the USPTO issued a non-final rejection in the application that issued as the '653 Patent, *inter alia*, rejecting claims 22, 24, 25, 29–32, 63, 64, 67–70, 74, 75, and 81–86 under 35 U.S.C. § 102(a)(1) as anticipated by, or in the alternative, under 35 U.S.C. § 103 as obvious over JP2013-019030 because:

> In regard to claims 22, 31, 32, 63, 64, 81-84, 86, JP'030 a magnesium composite comprising silicon. JP'030 teaches adding an additive of silicon (melting point 1414°C) to molten magnesium alloy kept at 800-900°C in an amount of 0.5-5 mass %, dispersing, and cooling in order to crystallize (precipitate) intermetallic phases that would be galvanically active since silicon is also used in the instant application to provide this feature. See the abstract and claim 6. JP'030 is silent regarding the claimed rate of dissolution and the unalloyed material (claim 86). However, since the product of JP'030 is a magnesium alloy with intermetallic phases including silicon (this is also the method in which the dissolution properties are controlled in the instant application), the product of JP'030 would behave in substantially the same manner when exposed to 3 wt. % KCI and would have a rate in the range claimed.

A true and correct copy of the USPTO's November 21, 2018 office action is attached hereto as Exhibit 8.

43. On February 26, 2019, Terves responded to the USPTO by stating:

> Applicant respectfully traverses this characterization. The JP '030 publication discloses a magnesium alloy that is usable "in transport-airplane machines" and other materials of an automobile, an airplane and a rail car, a machine part, and a robot part article, etc. (see JP '030 publication at ¶ 33). A person having ordinary skill in the art would understand that the magnesium alloys that are used in automobiles either improve corrosion resistance or are corrosion resistant. Additionally, automobile parts are designed to withstand exposure to salt and corrosive fluids. Therefore, Applicant submits that the CaMgSi phase in the magnesium alloy of the JP '030 publication is likely not galvanically active and would not corrode in the presences of a KCL water mixture.
>
> Applicant submits that the Examiner is relying on logic or scientific theory to

> support the rejection under Section 103. However, MPEP § 2144.02 requires that the Examiner provide "evidentiary support for the existence and meaning of a theory". It is respectfully requested that the Examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Otherwise, in accordance with MPEP § 2144.02, Applicant respectfully challenges the foregoing assertion and requests that the Examiner provide documentary evidence in support of the chemical theory.
>
> Furthermore, paragraph CJl 6 of the published application explains that "newly formed secondary metallic alloys begin to precipitate out of the molten metal and form the in situ phase to the matrix phase in the cooled and solid magnesium composite." Accordingly, for the magnesium composite to include the required "in situ precipitation of galvanically-active intermetallic phases", it would inherently be a solid magnesium composite. When in solid form, the magnesium composite has a dissolution rate of at least 5 mg/cm2/hr. in 3 wt.% KCL water mixture at 90°C.
>
> Based on the teachings of the JP '030 publication, the magnesium alloy must include a CaMgSi phase that has crystalized in the final alloy. There is no express teaching in the JP '030 publication or suggestion that would support the finding that the final, solid magnesium composite-having the CaMgSi phase as an intermetallic compound-would have a dissolution rate of at least 5 mg/cm2/hr. in 3 wt.% KCL water mixture at 90°C. There is no suggestion that the CaMgSi phase is galvanically-active, as required by the claims.

A true and correct copy of the USPTO's February 26, 2019 office action is attached hereto as Exhibit 9.

44. The USPTO issued no further rejections, and the '653 Patent issued June 25, 2019.

45. Terves commenced this litigation on July 15, 2019, asserting the '010 and '653 Patents.

46. Even though Terves provided the USPTO with an English-language translation of the Xiao abstract, the Xiao abstract alone does not completely describe the disclosures of the full-length Chinese-language version of Xiao, particularly as it relates to the limitations of the claimed inventions of the '653 Patent. The English-language version of the Xiao abstract discloses only:

> The invention discloses light and pressure-proof fast-decomposed cast magnesium alloy which can be used as a tripping ball material for a multi-stage sliding sleeve staged-fracturing technique. The light and pressure-proof fast-decomposed cast magnesium alloy is prepared from the following components: 13-25% of AI, 2-15%

> of Zn, 0.1-5% of Fe, 0.05-5% of Cu, 0.05-5% of Ni, 0-5% of Ag, 0.05-0.5% of Zr, 0.05-0.5% of Ti, and the balance of Mg. The preparation method comprises the following steps of: weighing the components according to the designed component ratio of the magnesium alloy; firstly, putting pure magnesium and pure aluminum into a smelting furnace, putting pure zinc and intermediate alloy of other components into magnesium-aluminum alloy melt after melting; refining, degassing, and stewing after warming to melt; then casting in a protective atmosphere. The light and pressure-proof fast-decomposed cast magnesium alloy is reasonable in component ratio, and simple in craft process; the light and pressure-proof fast-decomposed cast magnesium alloy can be obtained by controlling the ingredients of the alloy; the alloy decomposition performance exceeds that of the traditional cast magnesium alloy; the demands of the multi-stage sliding sleeve staged-fracturing technique on the decomposition performance of the tripping ball material can be met; industrialized application can be achieved; application of the magnesium alloy in the field of exploitation of petroleum and gas is expanded.

47. Even assuming the Examiner noted the English-language translation of the Xiao abstract's disclosure of one or more of copper, nickel, cobalt, titanium, and iron (which Terves argued were not present in JP'030), the English-language translation of the Xiao abstract does not disclose the dissolution rates claimed by the '653 Patent. However, the full-length, Chinese-language version of Xiao does disclose the dissolution rates claimed by the '653 Patent.

48. For example, the full-length Chinese-language version of Xiao provides:

Table 2: Room Temperature Compressive Strength and High Temperature Decomposition Rate of the Cast Alloy of the Present Invention:

	Room temperature tensile strength σ_b (MPa)	Decomposition rate at 70 °C in 3% KCl solution ($g.cm^2.h^{-1}$)	Decomposition rate at 93 °C in 3% KCl solution ($g.cm^2.h^{-1}$)
Comparative example 1	232	0.00026	0.0005
Example 1	360	0.035	0.074
Example 2	385	0.015	0.045
Example 3	410	0.013	0.036
Example 4	375	0.034	0.058
Example 5	392	0.025	0.048
Example 6	365	0.021	0.063
Example 7	387	0.036	0.057

Ex. 7 (Certified English Translation of the Chinese-language Xiao patent) at ¶ 64.

49. The English translation of the Chinese Patent Office's First Office Action available on Global Dossier demonstrates that the Chinese Patent Office—and therefore Terves—were aware that these elements were fully disclosed in the full-length, Chinese-language version of Xiao:

> Disclose in the table 2 at 70DEG C among the embodiment 1-7., Decomposition rate in the 3%KC1 solution can be for (mg/cm2/hour) .. , 35, 15 13, 3,4 25, 21, 36 At 93DEG C. Decomposition rate in the 3%KC1 solution can be for (mg/cm2/ hour) .. , 74, 45, 36, 58, 48, 63, 57 On this basis. Those skilled in the art can pass test and obtain in the 90DEG C3%KC1 solution., The decomposition rate of magnesium composite is in 5-300 mg/cm2/ hour scope.

Ex. 1 at pp. 13-14.

50. The full-length English version of Xiao and/or the Chinese Patent Office's First Office Action are therefore "material" to the patentability of the '653 Patent because they disclose that at least one element that Terves argued was not present in the prior art was actually present in the prior art, wherein "material" means that a reasonable U.S. Patent Examiner would have considered the information important in deciding whether or not to allow the '653 Patent. This is particularly true given Terves argued to the examiner that element was not present in the prior art.

51. Based on the Chinese Patent Office's August 11, 2017 First Office Action, Terves knew of the materiality of Xiao and, based on its decision to provide only the Xiao abstract in English and subsequent arguments regarding elements purportedly absent in the prior art (but disclosed in the Chinese-language version of Xiao), intended to deceive the USPTO by not providing the USPTO with a copy of an English translation of the full-length XIAO and/or failing to provide or make the USPTO otherwise aware of the Chinese Patent Office's First Office Action.

52. With respect to the '653 Patent, one or more of Terves, its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung, therefore violated their duty of candor and good faith

in dealing with the USPTO by failing to:

- bring to the attention of the USPTO "any material prior art or other information cited or brought to [applicants and other individuals'] attention in any foreign application. The inference that such prior art or other information is material is especially strong where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant." MPEP 2001.06(a); and

- provide the USPTO "a copy of the translation if a written English-language translation of a non-English-language document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in [37 C.F.R.] § 1.56(c)." 37 C.F.R. § 1.98.

53. "But for" one or more of Terves, and its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung violating their duty of candor and good faith in dealing with the USPTO the '653 Patent would not have been issued by the United States Patent Office.

54. An immediate, real, and justiciable controversy exists between Ecometal and Terves regarding the enforceability of the '653 Patent.

55. Ecometal seeks a judgment declaring that the claims of the '653 Patent are unenforceable under the doctrine of inequitable conduct.

THIRD COUNTERCLAIM
(Declaration of Unenforceability of the '740 Patent)

56. Ecometal repeats and re-alleges paragraphs 1–55 as if set forth specifically herein.

57. Terves filed non-provisional application No. 16/158,915, which issued as the '740 Patent, on October 12, 2018, as a continuation-in-part of application no. 15/641,439, which issued as the '653 Patent.

58. On or around December 5, 2018, Terves filed an Information Disclosure Statement in the application that issued as the '740 Patent, disclosing to the USPTO twenty-six (26) U.S. Patents, thirty-four (34) U.S. Patent publications, fifteen (15) Foreign Patent Documents (including the Chinese-language version of Xiao), and thirteen (13) Non-Patent Literature Documents.

59. Terves did not submit any version of Xiao or its abstract during prosecution of the application that issued as the ’740 Patent.

60. On January 6, 2020, pursuant to this Court’s Local Patent Rules and scheduling order adopting the same [Dkt. Nos. 18 and 20], Ecometal served on Terves Invalidity and Unenforceability Contentions, supporting claim charts, and accompanying document production, a true and correct copy of which are attached hereto as Exhibit 10.

61. Amongst other things, Ecometal’s invalidity contentions and charts identified Xiao as a basis for invalidating the ’010 and ’653 Patents and stated inequitable conduct as a basis for unenforceability of the ’010 and ’653 Patents.

62. On or around January 7, 2020, Ecometal also produced to Terves an English-language translation of the entirety of Chinese-language Xiao. *See* Ex. 11 hereto.

63. On or around March 10, 2020, in the application that issued as the ’740 Patent, Terves submitted an Information Disclosure Statement to the USPTO, disclosing two U.S. Patents and four Non-Patent Literature Documents that Ecometal had cited in its January 2020 Invalidity and Unenforceability Contentions that Terves had not previously disclosed to the USPTO. Notwithstanding its disclosure to the USPTO of six references relied on by Ecometal for its invalidity defense, Terves still ***did not*** disclose the existence of this litigation or provide the USPTO with copies of Ecometal’s Invalidity and Unenforceability Contentions, the supporting claim charts, or the English-language translation of the entirety of Xiao physically provided to Terves on or around January 7, 2020.

64. On or around March 26, 2020, in the application that issued as the ’740 Patent, Terves submitted another Information Disclosure Statement to the USPTO, disclosing another Non-Patent Literature Document. Terves again ***did not*** disclose the existence of this litigation or

provide the USPTO with copies of Ecometal's Invalidity and Unenforceability Contentions, the supporting claim charts, or the English-language translation of the entirety of Xiao provided to Terves on or around January 7, 2020.

65. On or around April 2, 2020, the USPTO sent Terves a Notice of Allowance for the application that issued as the '740 Patent, stating:

> Regarding independent claims 56, 57, 147, and 222, (all other claims depend from these claims) Scharf teaches a magnesium alloy AZ 91 with a composition meeting that of the independent claims. See Table 4. The claims, however, require dissolution rates of at least 5 mg/cm2/hr (claims 56 and 147) and at least 75 mg/cm2/hr (claims 57 and 222). The instant claims are drawn to an alloy composite made by adding additive metal powders to a melt of an alloy (AZ91 D) while maintaining the temperature of the melt below the melting point of the additive followed by dispersion and casting. See [0056]-[0058] of the instant specification. The claims require the additive to be a precipitate, particle or intermetallic phase. Scharf, on the other hand, teaches and studies the corrosion behavior of the AZ91 alloys containing dissolved impurities. Scharf also teaches high corrosion resistance at a pH of 11 in 3.5% NaCI, the highest being dissolution rate being 2.49 mm/year (0.0417 mg/cm2/hr). See Table 1. Though the test is not the same as that claimed, it shows high corrosion resistance, and since the alloy in Scharf is not the same physically or made in the same manner as the instantly claimed composite (the alloy in Scharf is melted AZ 91 D and dissolved additives, see the Experimental Section), it cannot be said with any degree of certainty that the alloy of Scharf would necessarily exhibit the same dissolution rate required by each of the independent claims. There appears to be no motivation to increase the dissolution rate of the product of Scharf into the claimed range as the purpose of the Scharf is to improve corrosion resistance. See the second column of page 1134 of Scharf.

A true and correct copy of the April 2, 2020 Notice of Allowance is attached hereto as Ex. 12.

66. Alleged, *supra*, Xiao discloses the very dissolution rate the Examiner noted was missing from Scharf:

> Table 2: Room Temperature Compressive Strength and High Temperature Decomposition Rate of the Cast Alloy of the Present Invention:

	Room temperature tensile strength σ_b (MPa)	Decomposition rate at 70 °C in 3% KCl solution ($g.cm^2.h^{-1}$)	Decomposition rate at 93 °C in 3% KCl solution ($g.cm^2.h^{-1}$)
Comparative example 1	232	0.00026	0.0005
Example 1	360	0.035	0.074
Example 2	385	0.015	0.045
Example 3	410	0.013	0.036
Example 4	375	0.034	0.058
Example 5	392	0.025	0.048
Example 6	365	0.021	0.063
Example 7	387	0.036	0.057

Ex. 7 (Certified English Translation of the Chinese-language Xiao patent) at ¶ 64.

67. The English translation of the Chinese Patent Office's First Office Action available on Global Dossier demonstrates that the Chinese Patent Office—and therefore Terves—were aware that these elements were fully disclosed in the full-length, Chinese-language version of Xiao:

> Disclose in the table 2 at 70DEG C among the embodiment 1-7., Decomposition rate in the 3%KC1 solution can be for (mg/cm2/hour) .. , 35, 15 13, 3,4 25, 21, 36 At 93DEG C. Decomposition rate in the 3%KC1 solution can be for (mg/cm2/ hour) .. , 74, 45, 36, 58, 48, 63, 57 On this basis. Those skilled in the art can pass test and obtain in the 90DEG C3%KC1 solution., The decomposition rate of magnesium composite is in 5-300 mg/cm2/ hour scope.

Ex. 1 at pp. 13-14.

68. On or around April 14, 2020, Terves again amended the claims that would eventually issue as the '740 Patent.

69. On or around May 13, 2020, the USPTO sent Terves a Notice of Allowance for the amended claims.

70. The '740 Patent issued June 23, 2020.

71. On July 24, 2020, Terves filed its Second Amended Complaint, accusing Ecometal of infringing the '010, '653, and '740 Patents.

72. Terves was made aware in this litigation, no later than January 6, 2020 when Ecometal served its Invalidity and Unenforceability Contentions and supporting charts, that Xiao discloses the very element the Examiner felt was absent from the prior art.

73. Yet, despite multiple communications with the Examiner between January 6, 2020 and the '740 Patents's issuance on June 23, 2020, Terves failed to disclose even the existence of this litigation to the USPTO, let alone Ecometal's invalidity positions, particularly Ecometal's reliance on Xiao's disclosures of teachings that the Examiner explicitly noted were allegedly absent from the prior art brought to the Examiner's attention.

74. The full-length English version of Xiao, the Chinese Patent Office's First Office Action, Ecometal's Invalidity and Unenforceability Contentions, and the existence of this litigation are therefore "material" to the patentability of the '740 Patent because they reveal the existence of prior art disclosing at least one element that Terves argued or the Examiner found was purportedly not present in the prior art, wherein "material" means that a reasonable U.S. Patent Examiner would have considered the information important in deciding whether or not to allow the '740 Patent. This is particularly true here where Terves argued to the patent examiner that element was not present in the prior art.

75. Based on the Chinese Patent Office's First Office Action and Ecometal's Invalidity and Unenforceability Contentions, supporting charts, and document production, Terves knew of the materiality of Xiao and, based on providing other items cited in Ecometal's Invalidity and Unenforceability Contentions to the USPTO but not the full-length English-language version of Xiao (produced by Ecometal in this litigation), intended to deceive the USPTO by not not providing the USPTO with a copy of a full-length English-language translation of XIAO and/or failing to provide or make the USPTO otherwise aware of those items.

76. In a related proceeding, Terves's litigation counsel has represented to this Court that it is his "standard operating procedure done within the course and scope of [his] representation of [his] client" to forward documents obtained through the discovery process "immediately to [his] client," thus raising the presumption—as if it were not already clear—that one or more of the inventors of the '740 Patent and/or Terves were in possession of and decided to withhold Ecometal's Invalidity and Unenforceability Contentions from the USPTO shortly after service thereof on January 6, 2020 and therefore certainly before Terves's submission of subsequent Information Disclosure Statements to the USPTO. *See* Transcript from related proceeding, Case No. 1:19-cv-2818 (N.D. Ohio) [Dkt. No. 29-2 at pp. 15–16], at true and correct copy of which is attached hereto as Exhibit 13.

77. With respect to the '740 Patent, one or more of Terves, its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung, therefore violated their duty of candor and good faith in dealing with the USPTO by failing to:

- bring to the attention of the USPTO "any material prior art or other information cited or brought to [applicants and other individuals'] attention in any foreign application. The inference that such prior art or other information is material is especially strong where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant." MPEP 2001.06(a);

- provide the USPTO "a copy of the translation if a written English-language translation of a non-English-language document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in [37 C.F.R.] § 1.56(c)." 37 C.F.R. § 1.98; and

- notify the USPTO, particularly through an Information Disclosure Statement, "the existence of [] litigation [involving the subject matter for which a patent is being sought] and any other material information arising therefrom." Namely, "material information that is raised in trial proceedings that is relevant to related applications undergoing examination should be submitted on an Information Disclosure Statement for the examiner's consideration. Examples of such material information include evidence of possible prior public use or sales, questions of inventorship, prior art, allegations of 'fraud,' 'inequitable conduct,' and 'violation of duty of disclosure.'"

MPEP 2001.06(c).

78. "But for" one or more of Terves, and its agents and representatives Messrs. Doud, Farkas, Sherman, and Turung violating their duty of candor and good faith in dealing with the USPTO the '740 Patent would not have been issued by the United States Patent Office.

79. An immediate, real, and justiciable controversy exists between Ecometal and Terves regarding the enforceability of the '740 Patent.

80. Ecometal seeks a judgment declaring that the claims of the '740 Patent are unenforceable under the doctrine of inequitable conduct.

ECOMETAL'S PRAYER FOR RELIEF

WHEREFORE, The Ecometal Defendants seek the following relief:

a. A judgment that neither of the Ecometal Defendants has infringed any claim of the '010 Patent, the '653 Patent, or the '740 Patent;

b. A judgment that the '010 Patent, the '653 Patent, or the '740 Patent are invalid and/or unenforceable against the Ecometal Defendants.

c. A judgment declaring this case exceptional under 35 U.S.C. § 285 and awarding the Ecometal Defendants their attorneys' fees and prejudgment interest, and an award to the Ecometal Defendants of all their costs of this action; and

d. An award to the Ecometal Defendants of their cost of suit;

e. Such other relief as the Court deem just and proper.

THE ECOMETAL DEFENDNATS' DEMAND FOR A JURY TRIAL

The Ecometal Defendants demand a trial by jury on all issues to triable.

Dated: August 7, 2020

Respectfully submitted,

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ATTORNEYS FOR DEFENDANTS NICK YUAN AND ECOMETAL INC.

CERTIFICATE OF SERVICE

I certify that on August 7, 2020, I electronically transmitted the foregoing document to the Clerk of the Court using the ECF system for filing and transmittal of a Notice of Electronic Filing to the following ECF registrants:

Matthew J. Cavanaugh
David B. Cupar
Andrew Gordon-Seifert

/s/ *Evan W. Talley*
Evan W. Talley